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NASA-07467 (June 2004)

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NASA

Superseding NASA-07467 (October 2003)

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SECTION 07467

STEEL SIDING

06/04

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NOTE: Delete, revise, or add to the text in this section to cover project requirements. Notes are for designer information and will not appear in the final project specification.

This section covers preformed metal siding, including fasteners and accessories, complete.

Drawings must indicate flashings, closures, fasteners, accessories, locations, and installation details

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PART 1 GENERAL

1.1 REFERENCES

****

NOTE: The following references should not be manually edited except to add new references. References not used in the text will automatically be deleted from this section of the project specification.

****

The publications listed below form a part of this section to the extent referenced:

ASTM INTERNATIONAL (ASTM)

ASTM A 446/A 446M	(2003) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality
ASTM A 525	(1993) Standard Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
ASTM A 525M	(1991; Rev A) Standard Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process (Metric)
ASTM C 920	(2002) Standard Specification for

	Elastomeric Joint Sealants
ASTM D 638	(2002a) Standard Test Method for Tensile Properties of Plastics
ASTM D 638M	(1996) Standard Test Method for Tensile Properties of Plastics (Metric)

1.2 SUBMITTALS

****
NOTE: Review submittal description (SD) definitions in Section 01330 SUBMITTAL PROCEDURES and edit the following list to reflect only the submittals required for the project. Submittals should be kept to the minimum required for adequate quality control. Include a columnar list of appropriate products and tests beneath each submittal description.
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The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES in sufficient detail to show full compliance with the specification:

SD-02 Shop Drawings

Fabrication Drawings and Installation Drawings for metal siding panels shall be submitted in accordance with paragraph entitled, "General Information," of this section.

SD-03 Product Data

Manufacturer's catalog data for the following items shall include storage and erection instructions, fastener data, and a list of accessories and miscellaneous trim.

Sheet Steel
Panel Sections
Side Joints
Primer Coating
Polyvinylidene Fluoride Coating
Translucent Panels
Subgirts
Flashings
Accessories
Closure Strips
Adhesives
Joint Sealants

SD-04 Samples

Contractor shall submit the following samples:

Three pieces of each profile to be used on the job, 9-inches 230 millimeter long by the width of the sheet.

Three each of the following items:

Steel Sheet
Joint Sealants
Fasteners
Primer Coating
Finish Coating

SD-07 Certificates

Certificates for Siding Erectors shall be submitted by the Contractor prior to the start of the work in accordance with paragraph entitled, "General Information," of this section.

1.3 DELIVERY, HANDLING, AND STORAGE

Metal siding shall be carefully handled at all times to prevent damage to the surfaces, edges, and ends. Contractor shall be responsible for arrangement with the manufacturer for adequate packaging and protection during shipment and during offsite storage. Upon arrival at the job site, the sheets shall be checked for damage, dampness, and wet storage stain. Moisture shall be removed from dampened or wetted sheets. Sheets not immediately used in the work shall be stored and protected in a covered dry location that provides good air circulation and is free from moisture and other corrosive environments. Sheets found damaged or stained shall not be used in the work.

1.4 GENERAL INFORMATION

Fabrication Drawings for metal siding panels shall indicate material, gage thickness, width and length of panels or bevel cuts, and size and location of holes to be cut prior to construction.

Installation Drawings shall be submitted for metal siding panels showing all accessories and special framing details, including corners, ridges, intersections and joints. Location and type of mastic, metal filler strips, and subgirts shall be clearly indicated.

Certificates for Siding Erectorsshall show acceptance by the manufacturer and evidence that the erector has applied siding on 3 or more projects of similar size in the past [2] [_____] years. Personnel working pursuant to this section, may at the Contracting Officer's option, be required to demonstrate technical competence by performing sample work [and/or by displaying their state qualifications/certificates], at no additional cost to the Government.

PART 2 PRODUCTS

2.1 SHEET STEEL

Sheet steel shall conform to requirements of ASTM A 446/A 446M, Grade A, coating designation ASTM A 525 ASTM A 525M, G90. Finish coating shall be as specified.

Panels shall be the interlocking side-joint type with concealed fasteners up to 40 feet 12.2 meter above grade.

Side Joints shall provide a gasket-free metal-to-metal, snug, weathertight fit with a male-female lock joint that forms a standing rib.

Panel Sections shall be furnished in lengths that will minimize horizontal

joints.

****
NOTE: Fill in blank space. Wind loading shall be in accordance with ANSI A58.1.
****

Panel design shall be verified by structural tests for both positive and negative wind loads by the "chamber method." Standard loading shall be [_____] pounds per square foot pascal wind load and a deflection of 1/180 under positive loading.

****
NOTE: Include the following paragraph only if panels are to match adjacent buildings.
****

Wall panels shall be of widths, depths, and section to match existing adjacent buildings. Exterior color finish shall match the approved color sample.

2.1.1 Metal Cleaning and Pretreatment

Metal surfaces shall be prepared for polyvinylidene fluoride coating on continuous process coating equipment to ensure uniformly clean, prepared surfaces. Process shall include alkali cleaning, hot water rinsing, chromate conversion coating, cold water rinse, acid rinse seal, and oven drying. Chromate conversion coating may be applied by roller coating, spray coating, or dip process.

2.1.2 Primer Coating

Exterior surface of the galvanized steel siding shall be given a chromate-bearing modified-epoxy prime coat applied to a dry-film thickness of 0.2 mil 0.005 millimeter minimum and shall be oven-cured prior to the finish coat application to ensure a strong bond with finish coat.

2.1.3 Finish Coating

Polyvinylidene Fluoride Coating shall be applied to a dry-film thickness of 1.0 mil 0.025 millimeter minimum and oven-cured.

2.2 PROTECTED METAL

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NOTE: Material specified in the first paragraph is produced only by the H. H. Robertson Company, under the trade name of "Galbestos." There are other "protected metal" siding materials available, but they are not similar in manufacturing process to "Galbestos."

The second paragraph permits a contractor option to "Galbestos" and must be included as required.

Drawings must indicate gage thickness, color, and profile of protected metal material.
****

Siding shall be factory color-coated, asphalt-saturated, non-asbestos-felt, zinc-coated steel sheets, in gage thickness, color, and profile as indicated. Sheets shall be commercial-quality steel sheets conforming to ASTM A 446/A 446M, Grade A. Material shall be fabricated in a continuous process assembly in which the flat steel sheet is dipped into molten zinc, after which non-asbestos felt is immediately rolled in and bonded to the still liquid zinc and the steel sheet. Laminated material shall then be asphalt-impregnated. After asphalt impregnation, sheets shall be given the specified color coating applied to provide a minimum dry-film thickness of 6 mils 0.152 millimeter. Colored laminated sheet shall then be rolled to the indicated profile.

At the option of the Contractor, and in lieu of the zinc-coated non-asbestos-felt protection specified, metal sheets shall be commercial-quality galvanized steel sheets conforming to ASTM A 446/A 446M, Grade A, coating designation ASTM A 525 ASTM A 525M, G90. After zinc coating the sheets shall be heated and coated with adhesive. After the coated sheet has been cured, two separate coats of a weather-resistant and chemical- and fume-resistant protective bituminous compound shall be applied. Immediately after the second protective bituminous compound coat has been applied, a layer of mica shall be applied to both sides of the sheet under heat and pressure. Total dry-film thickness of bituminous compound and mica shall be not less than 25 mils 0.635 millimeter and shall average 30 mils 0.762 millimeter. Mica-coated sheets shall be uniform in appearance; nonuniform appearing sheets will be rejected. Dry-film thickness of the color coating shall be not less than 0.006 inch 0.152 millimeter and shall provide complete hiding to the extent that the application of additional paint will not cause a change in color.

2.3 TRANSLUCENT PANELS

Translucent siding panels shall be a polyester-resin glass-reinforced panel in the same shape as the steel siding panels. Panels shall be composed of polyester resins and a 2-ounce 60 gram glass-fiber reinforcement. They shall have a glass content of not less than 25 percent. Panels shall carry the Factory Mutual label and the Underwriters Laboratory label certifying the flame spread rating to be 35. Tensile strength shall be at least 14,000 pounds per square inch 96.5 Megapascal as specified in ASTM D 638 ASTM D 638M. Nominal thickness shall be 0.06 inch 1.52 millimeter and the weight shall be approximately 8 ounces per square foot 2.5 kilogram per square meter. Color shall be light green with light transmission of 64 percent. Exterior surface exposed to weathering shall be smooth; the interior surface shall be embossed.

Panels shall be protected with film permanently bonded by heat and pressure to the exterior side of the panels.

2.4 PANEL SUBGIRTS

Panel subgirts shall be fabricated of 20-gage 1.0 millimeter minimum galvanized steel, die formed sections, and as indicated on approved drawings.

2.5 ACCESSORIES

Flashings and similar items shall be of the same basic materials as the sheets, shaped or formed as standard with the manufacturer of the sheets, and finished in the same manner as siding.

2.6 FASTENERS

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NOTE: Select applicable fastener type.
****

Fasteners shall be of the type required to securely fasten the siding to the structural members and subgirts. Exposed heads of fasteners shall be the same color and protected with same material as the siding and shall be corrosion-resistant steel with molded neoprene washers bonded to dished corrosion-resistant steel washers. Fasteners shall be capable of withstanding a minimum torque of 150 inch-pounds 17 newton-meter.

Fasteners shall be concealed type required to securely fasten siding to the structural members and subgirts. Fasteners shall be capable of withstanding a minimum torque of 150 inch-pounds 17 newton-meter.

2.7 PROFILE CLOSURES

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NOTE: Select one of the following types of profile closures.
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Steel Closure Strips shall be 20 gage 1.0 millimeter, prime painted, and shall be provided at open ends of metal wall panel.

Rubber or synthetic rubber closure strips shall be closed-cell and shall be cut or molded to the exact configuration of the wall panel. Closure strips shall be uniform in appearance and free of bubbles, cracks, and defects affecting serviceability.

Adhesives for use with rubber or synthetic-rubber closure strips shall be of the type recommended by the wall-panel manufacturer.

2.8 JOINT SEALANTS

2.8.1 General

Sealants shall be an approved gunnable type for use in hand or air-pressure calking guns at temperatures above 40 degrees F 4 degrees C (or frost-free application at temperatures above 10 degrees F) minus 12 degrees C). They shall be used around doors, windows, masonry, and other construction material. Sealant shall consist of a synthetic resin or elastomer-based system to provide controlled skinning, good color retention, and excellent workability. Solids content shall be a minimum of 85 percent of the total volume. Sealant shall dry with a tough, durable surface skin that permits it to remain soft and pliable underneath, providing a weathertight joint. No migratory staining will be permitted on painted or unpainted metal, stone, glass, vinyl, or wood.

Joints shall be primed with a compatible one-component or two-component primer as recommended by the sealant manufacturer.

2.8.2 Shop Applied

Sealant for shop-applied calking shall be an approved gun grade, nonsag one-component polysulfide or silicone conforming to ASTM C 920, Type II, and with a curing time to ensure the sealant's plasticity at the time of

field erection.

2.8.3 Field Applied

Sealant for field-applied calking shall be an approved gun grade, nonsag one-component polysulfide conforming to ASTM C 920, Type II, except base material, or two-component polyurethane with an initial maximum Shore A durometer hardness of 25 conforming to ASTM C 920, Type II, except for base material. Color shall match panel colors.

PART 3 EXECUTION

3.1 GENERAL

Erection shall be by the manufacturer's authorized erector and shall be in strict accordance with manufacturer's instructions appearing on the manufacturer's approved drawings and specifications. Entire installation shall be in a neat, approved manner.

Sheets shall be of the greatest length to suit girt spacings and arrangement indicated and to minimize end laps. Laps shall be over girts. Panel sections shall be in full and firm contact with structural support. Extreme care shall be exercised in drilling or cutting. Metal filings and burrs shall be removed prior to installation of sheets. Where sheets are cut in the field, or where factory finish is damaged, the finish shall be repaired and made to match the factory finish. Sheets shall be inspected and approved prior to installation. Sheets having the metal core exposed shall not be used. Cut ends and edges, including those at openings through the sheets, shall be completely sealed.

3.2 ALIGNMENT

Alignment of structural steel girts or other steel supports to receive wall panels shall be examined prior to installation. Misalignment of such steel or other conditions not within the usual AISC tolerance shall be corrected before wall panel installation is started.

3.3 FASTENERS

Fasteners shall be spaced as follows:

At each rib, at end supports, and in each rib at intermediate supports

At side laps of sheet, 12 inches 300 millimeter on center (maximum)

At flashings, 8 inches 200 millimeter on center (maximum), except where flashings are fastened together with ends of covering sheets by the same fasteners used for the covering sheets

3.4 LAPPING SHEETS

Siding sheets shall be installed vertically with laps to the leeward of the prevailing wind direction. End laps of siding sheets shall be not less than 4 inches100 millimeter.

3.5 ACCESSORIES

Accessories, including profile closures, fillers, and other accessories required to ensure a weatherproof and complete construction, shall be

installed as shown on the approved drawings. Where not otherwise indicated, installation shall be in accordance with approved manufacturer's recommendations.

-- End of Section --